App. No. 10/501,865
Office Action Dated 3/15/2005

Amendments to the Claims:

This listing of claims will replace all prior versions and listing of claims in the application.

Claims 1, 7, 8, 11 and 14 are amended.

Claim 15 is new.

Listing of Claims:

1. (Currently Amended) A MIM (metal-insulator-metal) capacitor comprising:

a substrate;

a first metal area;

a second metal area formed between the substrate and first metal area; and

a first insulating layer formed between the first metal area and the second metal area;

wherein a capacitance value is determined by opposing surface areas of the first metal area and the second metal area;

and further comprising:

a third metal area formed between the second metal area and the substrate; [[and]]

a second insulating layer formed between the third metal area and the second metal area; and

a third insulating layer formed between the third metal area and the substrate, the third insulating layer being in direct contact with the third metal area and the substrate;

wherein the third metal area is connected to a ground potential.

2. (Original) The MIM capacitor according to claim 1, wherein a surface area of a surface of the third metal area opposing the second metal area is smaller than a surface area of a surface of the second metal area.

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3. (Original) The MIM capacitor according to claim 2, wherein a metal-free area formed in the third metal area is formed by a plurality of metal-free areas.

4. (Original) The MIM capacitor according to claim 3, wherein the plurality of metal-free areas are formed in parallel.

5. (Original) The MIM capacitor according to claim 3, wherein the plurality of metal-free areas are formed intersecting.

6. (Original) The MIM capacitor according to claim 2, wherein at least one of the metal-free areas is formed so as to be partitioned symmetrically to the third metal area.

7. (Currently Amended) [[The]] A MIM (metal-insulator-metal) capacitor ~~according to claim 1, wherein the~~ comprising:

a substrate;

a first metal area;

a second metal area formed between the substrate and first metal area; and

a first insulating layer formed between the first metal area and the second metal area;

wherein a capacitance value is determined by opposing surface areas of the first metal area and the second metal area;

and further comprising:

a third area [[is]] formed as a diffusion layer having conductivity between the second metal area and the substrate;

a second insulating layer formed between the third area and the second metal area; and

a third insulating layer formed between the third area and the substrate, the third insulating layer being in direct contact with the third area and the substrate;

wherein the third area is connected to a ground potential.

8. (Currently Amended) A MIM capacitor comprising:

a substrate;

a first metal area ~~and a second metal area~~ formed ~~respectively~~ opposing the substrate;

a second metal area formed opposing the substrate, the second metal area being coplanar with the first metal area;

a third metal area formed between the first metal area and the substrate so as to oppose the first metal area;

a fourth metal area formed between the second metal area and the substrate so as to oppose the second metal area, the fourth metal area being coplanar with the third metal area; and

an insulating film formed between the first metal area and the third metal area, and between the second metal area and the fourth metal area;

wherein a first capacitance value is determined by opposing surface areas of the first metal area and the third metal area, and a second capacitance value is determined by opposing surface areas of the second metal area and the fourth metal area;

and further comprising a fifth metal area formed in an electrically floating state between the third and fourth metal areas and the substrate so as to oppose both the third metal area and the fourth metal area.

9. (Original) The MIM capacitor according to claim 8, wherein the fifth metal area is connected to a ground potential.

10. (Original) The MIM capacitor according to claim 9, wherein the fifth metal area is connected to the ground potential at a connection point such that impedance to the third metal area and impedance to the fourth metal area are substantially equivalent.

11. (Currently Amended) A MIM capacitor comprising:

a substrate;

a first metal area ~~and a second metal area~~ formed ~~respectively~~ opposing the substrate;

a second metal area formed opposing the substrate, the second metal area being coplanar with the first metal area;

a third meal area formed between the first and second metal areas and the substrate so as to oppose both the first metal area and the second metal area;

wherein a first capacitance value is determined by opposing surface areas of the first metal area and the third metal area, and a second capacitance value is determined by opposing surface areas of the second metal area and the third metal area; and

wherein the third metal area is formed so as to be in an electrically floating state.

12. (Original) The MIM capacitor according to claim 11, wherein the third metal area is connected to a ground potential.

13. (Original) The MIM capacitor according to claim 12, wherein the third metal area is connected to the ground potential at a connection point such that impedance to the first metal area and impedance to the second metal area are substantially equivalent.

14. (Currently Amended) [[The]] A MIM capacitor ~~according to claim 8, wherein the~~ comprising:

a substrate;

a first metal area formed opposing the substrate;

a second metal area formed opposing the substrate, the second metal area being coplanar with the first metal area;

a third metal area formed between the first metal area and the substrate so as to oppose the first metal area;

a fourth metal area formed between the second metal area and the substrate so as to oppose the second metal area, the fourth metal area being coplanar with the third metal area; and

an insulating film formed between the first metal area and the third metal area, and between the second metal area and the fourth metal area;

wherein a first capacitance value is determined by opposing surface areas of the first metal area and the third metal area, and a second capacitance value is determined by opposing surface areas of the second metal area and the fourth metal area;

and further comprising a fifth area formed as a diffusion layer having conductivity ~~conductive property~~ in an electrically floating state between the third and fourth metal areas and the substrate so as to oppose both the third metal area and the fourth metal area.

15. (New) The MIM capacitor according to claim 1, wherein a surface area of a surface of the third metal area opposing the second metal area is smaller than a surface area of a surface of the second metal area, thereby providing means to adjust a Q value of a parasitic capacitor formed therebetween, and

wherein the third metal area shields the second metal area from the substrate.